



MOBILE WATER TREATMENT TRAILER

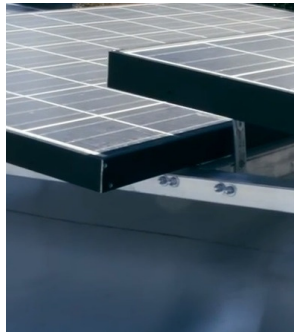
Nevada Solar-Water Express

Solar energy proves an ideal energy source since harnessing the sun's rays to produce electricity doesn't create greenhouse gases or pollutants. The Solar Energy-Water-Environment Nexus in Nevada (Solar Nexus) project is performing innovative research on solar power use that protects the environment and uses water resources wisely.

Solar panels become 'dirty' over time with dust particle accumulation that reduces energy efficiency. Water to clean the panels is scarce in Nevada.

Researchers have developed technology to use the free and renewable energy from the sun to treat waste water and other low-quality water to produce clean water. When the panels are clean they produce 5 to 10% more electricity, depending on how much dust deposits are on the panel.

The Nevada Solar-Water Express demonstrates the capabilities that the researchers are developing in the state of Nevada. It can be located at remote sites for research or moved anywhere to demonstrate engineering and science applications to the public.



HOW CAN WASTEWATER BECOME CLEAN WATER?

The Nevada Solar-Water Express includes many different water treatment technologies, including a pilot-scale membrane distillation system. This membrane-based process uses low-grade heat rather than high pressures to treat water, making it very inexpensive to operate as long as there is a heat source. At a solar facility there is a lot of excess heat that we can take advantage of and utilize to run the membrane distillation process. This also helps the solar facilities capture the solar energy more efficiently, all while producing clean water.

Other treatment technologies in the trailer are an oxidation unit, a UV unit, several pressure-driven Membrane processes, and another process that uses ion exchange. The goal is to use this trailer to demonstrate several advanced treatment methods in the field.

The ultimate goal is to develop a treatment train for solar facilities to treat the water they have, especially waste waters they cannot simply discharge or waters that they want to reuse.



Nevada Solar-Water Express Video
<https://youtu.be/KSj5Zv77cTg>



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